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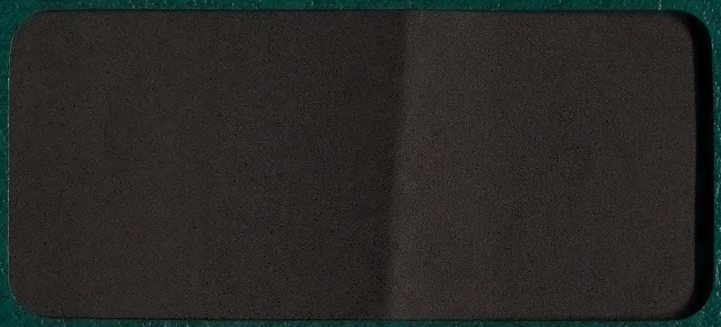
LORAIN

Products Corporation



instructions

INSTALLATION
OPERATION
MAINTENANCE

DESIGNERS AND MANUFACTURERS OF

power equipment without moving parts SUB-CYCLE® AND FLOTRO

CONVERTERS RECTIFIERS

Lorain

6A1
POWER UNIT

Spec. No 816-00 Serial No 361
5747-001

INSTALLATION AND OPERATING INSTRUCTIONS FOR 6A1 POWER UNIT SD-738-01

TABLE OF CONTENTS

		Page
1.01	MOUNTING	1
1.02	AC INPUT CONNECTIONS	1
1.03	AC INPUT ADJUSTMENT	1
1.04	DC OUTPUT CONNECTIONS	2
1.05	DC OUTPUT VOLTAGE ADJUSTMENT	2
1.06	RINGING OUTPUT	2
1.07	60 CYCLE SIGNALING OUTPUT	3
1.08	GROUND TERMINALS	3
1.09	OFF-ON SWITCH	3
1.10	AGING ADJUSTMENT	3
1.11	INPUT PROTECTION	3
1.12	OUTPUT PROTECTION	4
1.13	FILTERING	4
1.14	REGULATION	4
1.15	EFFICIENCY	4
1.16	POWER FACTORS	4
1.17	POWER TRANSFORMER (T-11)	4
1.18	TRANSDUCTOR (L-11)	5
1.19	VOLTAGE REFERENCE CIRCUIT	5
1.20	POWER RECTIFIER	6
1.21	RINGING CONVERTER	6

INSTALLATION AND OPERATING INSTRUCTIONS FOR 6A1 POWER UNIT SD-738-01

INPUT	OUTPUT
105-129 Volts	24 Volts DC Adjustable, 6 Amperes
60 Cycles	10 Volts 15 Amps, 60 Cycles
6.5 Amperes, 550 Watts	20 Volts 1 Amp, 60 Cycles
	95-75 Volts 0.1 Amp, 20 Cycles

1.01 MOUNTING

Model 6A1 can either be wall or relay rack mounted. These models are normally shipped for wall mounting. To change the FLOTROL for relay rack mounting, remove the side angle brackets from the rear position and attach them to the central portion of the cabinet. The screws removed from the central portion are used in the rear holes. It is essential that the rear row of screws be in place to hold the base to the cabinet.

1.02 AC INPUT CONNECTIONS

The incoming 110 volt AC input wiring should be brought into the cabinet through the insulated bushing provided, located at the top of the cabinet on the left hand side. Holes are also provided on the left hand side and at the bottom of the cabinet. Should entrance be desired through either of these positions, the insulated bushing at the top can be interchanged with the snap fasteners in these holes. The incoming AC line should be connected to the terminals marked AC-GRD located on the left hand side of the meter panel. Access to this panel can be had by removing the front cover of the FLOTROL. 14 ga. wire is recommended for input wiring.

1.03 AC INPUT ADJUSTMENT

Three input voltage ranges are available, selected by input taps on the power transformer. Access to the power transformer can be obtained by lowering the front cover. Taps are marked 111, 117 and 123. The input can vary ±5% from the voltage listed, and still maintain output regulation limits. Select the tap best suited to the available input voltage.

1.04 DC OUTPUT CONNECTIONS

The DC output wiring should be brought through the insulated bushing located at the top of the cabinet on the right hand side. Holes are also provided on the right side of the cabinet and at the bottom of the cabinet for output wires. The snap fasteners in these holes may be interchanged if desired with the insulated bushing at the top. The DC output wires are to be connected to the top terminals on the right hand side of the meter panel. This is located underneath the front cover.

These terminals are labeled + and - and should be used in connecting the output wires in the proper polarity. The size of wire used for output connections depends on the length of wire used. The table below gives the wire sizes for various loop lengths that will hold the voltage drop in the output leads to less than 1%.

WIRE SIZES	MAXIMUM LOOP LENGTH
12 Ga.	25'
10 Ga.	40'
8 Ga.	61'
6 Ga.	100'
4 Ga.	160'

1.05 DC OUTPUT VOLTAGE ADJUSTMENT

The output voltage is adjusted with a potentiometer (R-13). This is located on the meter panel behind the front cover. Turning the potentiometer clockwise will increase the output voltage. The potentiometer will cover the output voltage range from 22 volts to 26 volts.

1.06 RINGING OUTPUT

20 cycle 95 to 75 volt ringing output terminals are located on the right hand side of the meter panel. These are marked 20 cycles.

1.07 60 CYCLE SIGNALING OUTPUT

15 amperes at 10 volts 60 cycles are available for signaling from terminals marked C and 10V. These terminals are on the output terminal strip located on the right hand side of the meter panel. 1 amp at 20 volts 60 cycles is available from terminals marked C and 20V.

1.08 GROUND TERMINALS

The positive DC terminal, the common terminal for 60 cycle AC signaling, and the lower 20 cycle terminal are all commoned and connected to the bottom terminal of the output strip marked "GRD". A earth ground connected to the "GRD" terminal will ground each of these circuits. A frame ground terminal is provided by a solderless lug mounted on the back plate below the output terminal strip. One side of the AC input terminal is marked ground. This terminal is not connected internally to either the output ground or the frame ground.

1.09 OFF-ON SWITCH

The off-on switch is located on the meter panel behind the front cover.

1.10 AGING ADJUSTMENT

The power rectifier in this power unit is a silicon type and because of this, forward resistance is not expected to increase with aging. Terminal (5) on the power transformer, used for aging adjustment on selenium power rectifier type models, is no longer used.

1.11 INPUT PROTECTION

A 5 amp fuse is provided in the incoming power lead. This fuse is located on the meter panel. A separate 1 1/2 ampere fuse is provided for the 20 cycle SUB-CYCLE ringing converter. Spare fuses are furnished with the FLOTROL.

1.12 OUTPUT PROTECTION

A 6 ampere fuse is provided in the negative DC output lead. This fuse is located on the meter panel. A one ampere fuse is provided in the 20V 60 cycle signaling output circuit. A 15 ampere circuit breaker is provided in the 10V 60 cycle signaling output circuit.

1.13 FILTERING

A choke (L-12) and two banks of capacitors C-11 and C-12 are used to filter the output. The AC ripple voltage is less than 30 millivolts.

1.14 REGULATION

The FLOTROL will maintain the output voltage set by the voltage adjust potentiometer within ±5%, in spite of an input voltage variation within the input voltage range selected and in spite of a load variation from no load to full load.

1.15 EFFICIENCY

The full load efficiency of the charger is about 60%. The efficiency is approximately the same at half load, and tapers to about 50% at one quarter load.

1.16 POWER FACTORS

The power factor varies between .3 and .65. The best power factor is with full load and low AC input voltage.

1.17 POWER TRANSFORMER (T-11)

The power transformer (T-11) reduces the line voltage to the proper value and also electrically isolated the input from the output. The primary winding has 3 taps for different input voltages.

The secondary winding supplies power to the power rectifier (CR-11) thru the transductor unit (L-11).

1.18 TRANSDUCTOR (L-11)

The transductor (L-11) has its outer windings connected to the transformer and rectifier. Under light load conditions the sum of the magnetizing forces created by the control windings is small, therefore the impedance of the transductor is high, reducing the voltage applied to the rectifier. When the core of the transductor is saturated by the DC current flowing thru the control windings, its impedance is low and maximum voltage is supplied to the power rectifier.

The winding with terminals 5 and 6 is used to compensate for fluctuations of the DC load and the AC line voltage. The second control winding with terminals 7 and 8 is used to compensate for some of the voltage drop in the magnetic units and wiring as the charger is being loaded.

The degree of saturation is proportional to the summation of the magnetizing effort of the two windings, some units have a shunt connected across terminals 7 and 8. This is a factory adjustment and should never be altered. The shunt determines the amount of DC load current that will flow thru the winding with terminals 7 and 8. This provides the correct amount of compounding to overcome most of the losses encountered in the power transformer, transductor, power rectifier and wiring, L-13 is a choke used to preload the transductor instead of a resistance load which would consume power.

1.19 VOLTAGE REFERENCE CIRCUIT

The voltage reference circuit consists of a zener diode for a reference standard. The zener diode (CR-13) is supplied with power from across the DC output terminals through resistor R-11. The current through these elements is proportioned so that the voltage across the zener diode (CR-13) remains substantially constant. The voltage across the zener diode is balanced against the sum of the voltages across resistor R-13 and R-14. These two resistors are part of a voltage divider which is connected across the output terminals. A differenc between the two voltages will cause a current to pass through winding 5-6 on transductor L-11 controlling its impedance.

Resistors R-14 & R-15 are factory adjustments used to control the voltage range.

1.20 POWER RECTIFIER

The power rectifier consists of 4 silicon diodes connected in a full wave bridge-type circuit.

1.21 RINGING CONVERTER

The 20 cycle ringing converter is a standard M7.5-60 SUB-CYCLE, composed of units L-1, L-2 and L-3, C-1, C-2 and C-3 and relay. Unit L-3 is a tone coil for providing "reverting or ring back" tone, and has three taps for varying the tone level. When the SUB-CYCLE leaves the factory, the medium tap is connected, but if it is desired to increase or decrease the tone level, use taps marked high (H) or low (L).

The relay is used only for starting the converter. Once started the contact on the relay is held open all the time the converter is in operation. Should the power fail, the relay will release to be in position to restart the SUB-CYCLE upon restoration of power.

LORAIN PRODUCTS CORPORATION
Lorain, Ohio, U.S.A.

LORAIN PRODUCTS (CANADA) LTD.
St. Thomas, Ontario, Canada

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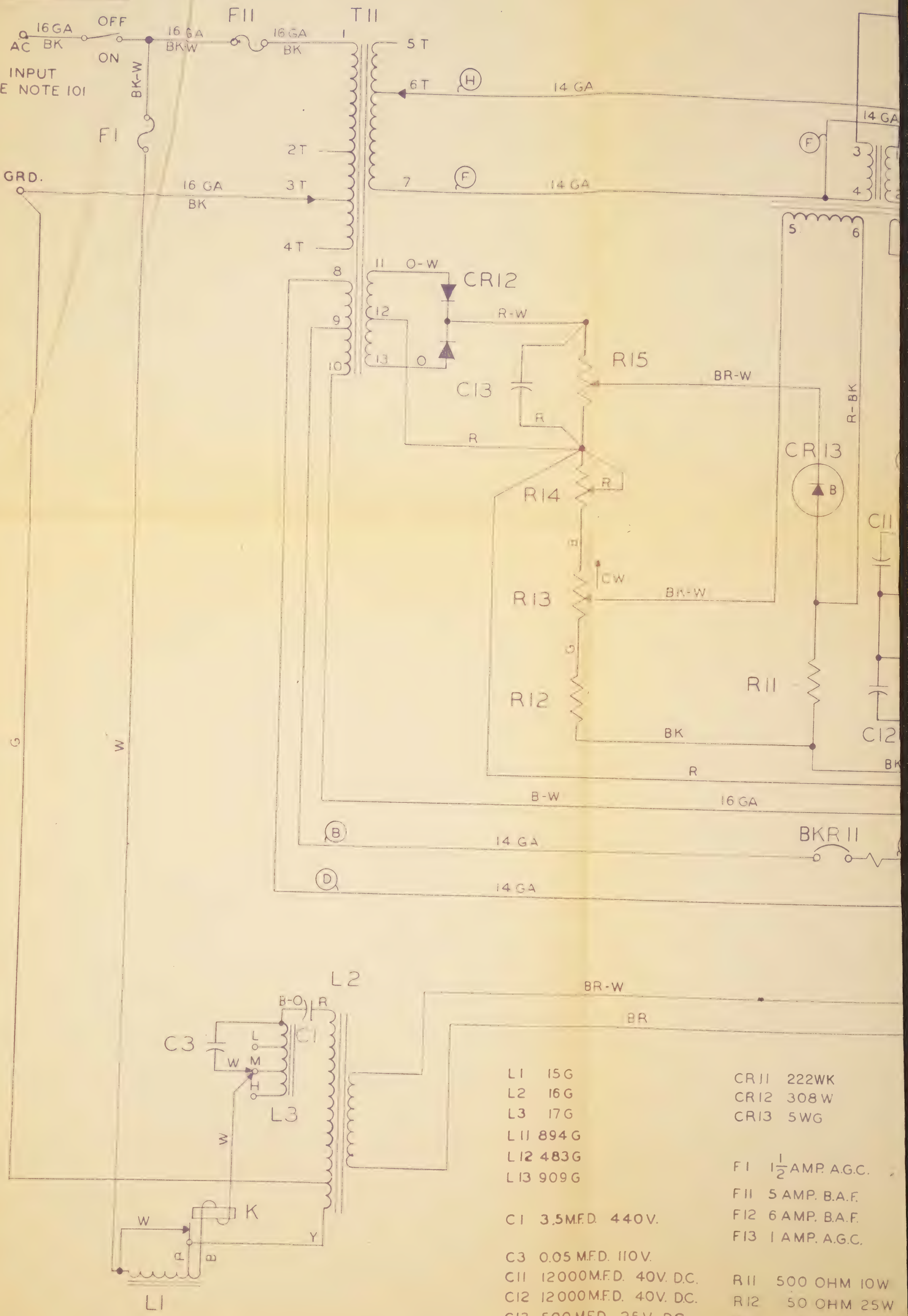
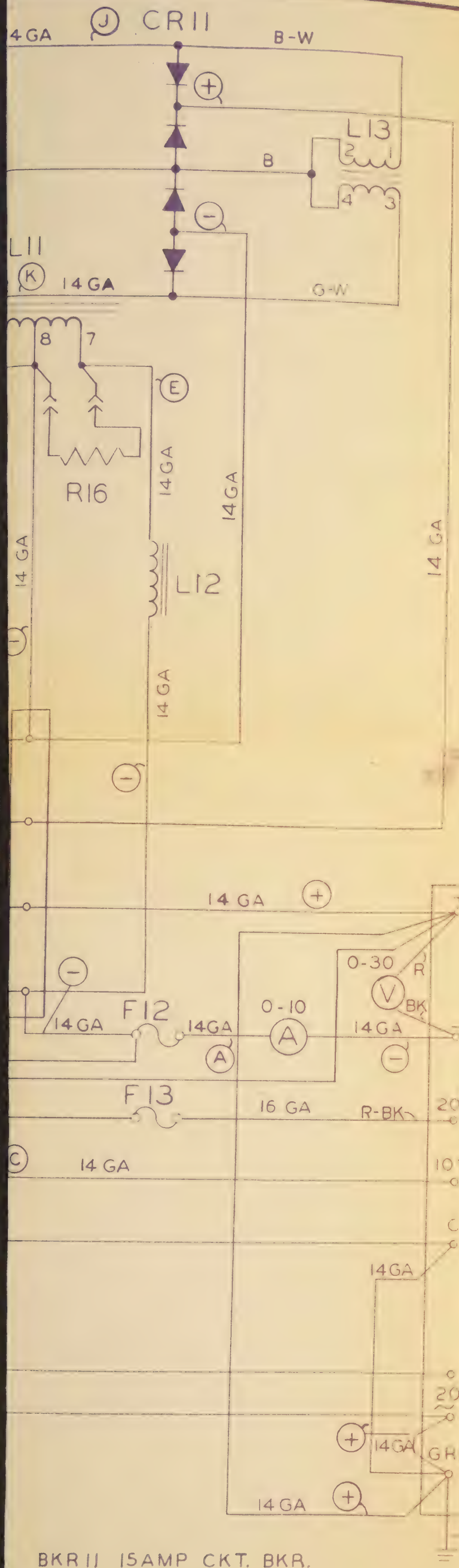
Form 666

SD-738-01



L1	15 G
L2	16 G
L3	17 G
L11	894 G
L12	483 G
L13	909 G
C1	3.5 M.F.D. 440 V.
C3	0.05 M.F.D. 110 V.
C11	12000 M.F.D. 40 V. D.C.
C12	12000 M.F.D. 40 V. D.C.
C13	500 M.F.D. 25 V. D.C.
K	6KA

CR11	222WK
CR12	308 W
CR13	5WG
F1	1½ AMP. A.G.C.
F11	5 AMP. B.A.F.
F12	6 AMP. B.A.F.
F13	1 AMP. A.G.C.
R11	500 OHM 10W
R12	50 OHM 25W
R13	6 OHM 4W
R14	25 OHM 25W
R15	25 OHM 25W
R16	WIRE SHUNT



NOTES

101 AC INPUT 115 VOLTS, 60 CYCLES, ADJUSTABLE TAPS FOR 111, 117, OR 123 VOLTS; ±5% ALLOWABLE LINE VOLTAGE VARIATION AT EACH INPUT SETTING.

102 FILTERED D.C., 24 VOLTS, 6 AMPS ADJUSTABLE FROM 22 TO 26 VOLTS D.C.; ±5% OUTPUT VOLTAGE REGULATION MEASURED AT 24 VOLTS ONLY.

103 10 VOLTS ±1 VOLT, 60 CYCLES, 15 AMP. OUTPUT.
20 VOLTS ± 2.5 VOLTS, 60 CYCLES, 1 AMP. OUTPUT.

104 90-75 VOLTS, 20 CYCLES, 0.100 AMPERE OUTPUT.

105 ALL WIRING NOT DESIGNATED TO BE 18 GA SOLID.
ALL ADJUSTABLE WIRING TO BE STRANDED.

ISS.	CHANGE SLIP NO.	DWG CHGD BY	DATE	REVISION
1	2859	R.Y.	4 29 59	COLOR CODE ADDED BETWEEN F13 & TERM. ST.
2	6513	GB	11 21 61	C2 REMOVED FROM SUB- CYCLE
3	10138		8 26 63	PWR. WIRING MARKED B. KARKELLIS
4	10922		1 14 64	CR11 WAS 309WA
5	12581	1-26-65		VOLTMETER & AMMETER CHG

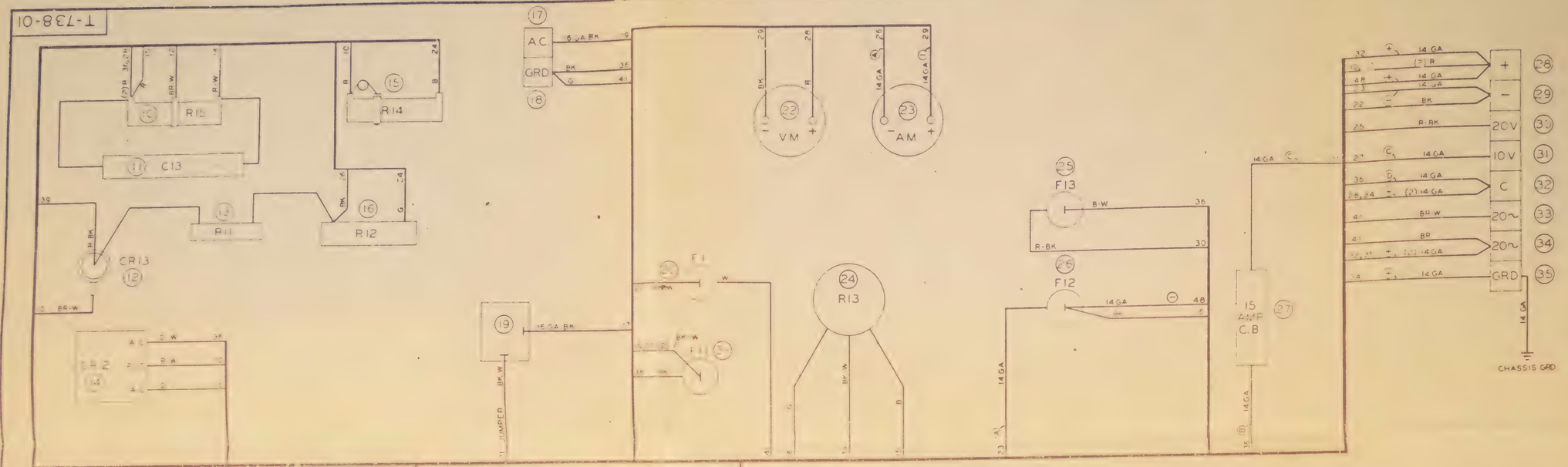
THIS PRINT
IS FOR FLOTROL
SERIAL NO. 361

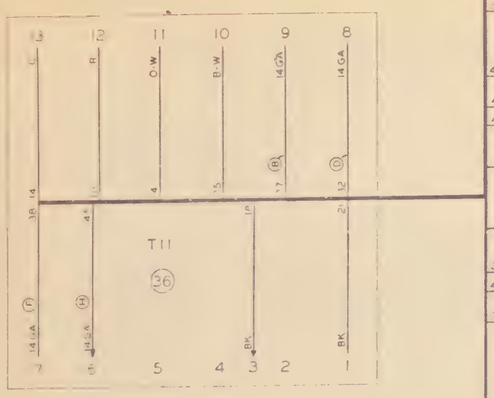
SCHEMATIC DIAGRAM FOR 6A1 POWER UNIT

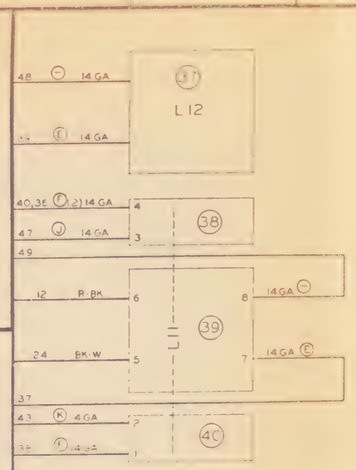
LORAIN PRODUCTS CORP.
LORAIN, OHIO

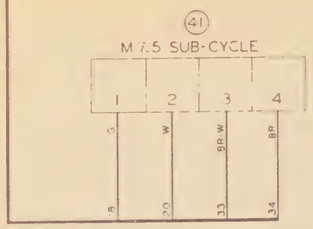
DRAWN BY	DATE	PART NO.	SCALE
CJA	8-8-58		
CHECKED BY	DATE	SD-738-01	
APPROVED BY	DATE		

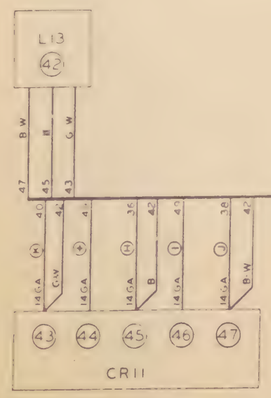
T-738-01

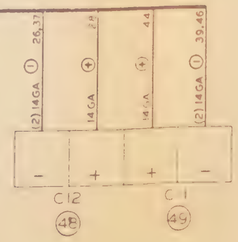












DESIG NO	PART NO	DESCRIPTION
10	[illegible]	250HM 25WATT DIVIDOHM, R15
11	[illegible]	500 MFD 25 VOLT D.C. ELECTROLYTIC CAP, C13
12	5W[illegible]	REFERENCE DIODE, CR13
13	13[illegible]	[illegible] OHM 10 WATT RESISTOR, R11
14	30[illegible]	REFERENCE RECTIFIER, CR12
15	14[illegible]	25 OHM 25 WATT RESISTOR, R14
16	2[illegible]	50 " 25 " " , R12
17,18	436[illegible]	A.C. INPUT TERM BARRIER STRIP
19	24N	SPST SWITCH
20	9M	1½ AMP FUSE, F1
21	28M	5 AMP FUSE, F11
22	87NA	0-35 VOLT VOLTMETER
23	80NA	0-10 AMP AMMETER
24	145YA	6 OHM 4 WATT POTENTIOMETER, R13
25	13M	1 AMP FUSE, F13
26	11M	6 AMP FUSE, F12
27	77N	15 AMP CIRCUIT BREAKER, CB1
28 TO 35	381L	OUTPUT TERM BARRIER STRIP

DESIG NO	PART NO	DESCRIPTION
35	931G	POWER TRANSFORMER, T11
37	483[illegible]	FILTER CHOKE, L12
40,41	894[illegible]	TRANSFORMER, L13
41	594S	M 7.5 SUB-CYCLE
42	909G	SHUNT INDUCTANCE, L13
43	222WA	POS. A.C. TERM ON POWER RECT, CR11
44	"	POSITIVE " " " " " "
45	"	A.C. " " " " " "
46	"	NEGATIVE " " " " " "
47	"	NEG A.C. " " " " " "
48	36F	FILTER CONDENSER, C12
49	36F	" , C1

1	2859 RY	4 29 59	WIRE SIZE CHGD CHASSIS GRD ADDED
2	3710 GS	9 28- 59	TERM STRIP N° S CHG'D.
3	10118 DAV	8 15 63	14GA AC BLACK TO ON-OFF SWITCH CHGD. TO 16GA BLACK
4	10138	R 26 63	PWR WIRING MARKED
5	10922	1 14 64	POWER RECT. WAS 309WA
6	12814	10 12 64	F11 AND F12 PT NOS CORRECTED

WIRING DIAGRAM
FOR
6A1 POWER UNIT

LORAIN PRODUCTS CORP.
LORAIN, OHIO

CJA 1-23-59

T-738-01

LORAIN

COMBINATION POWER UNITS

for PAX, PBX and PABX INSTALLATIONS

RINGING, TALKING, TONE, SIGNALING and INTERRUPTION

MODEL 6B8 - ELIMINATOR

MODEL 9B7 - CHARGER

MODEL 12B3 - ELIMINATOR-CHARGER

LORAIN COMBINATION POWER UNITS

This line of Lorain equipment offers a flexible group of eliminators, chargers and eliminator-chargers to provide various combinations of ringing, talking, signaling, tone and interruption to meet virtually any requirement in the communications industry. Some eliminators may be ordered with accessory kits adapting them for charger use while, conversely, some chargers may be ordered with accessory kits adapting them for eliminator use. All models operate from 115 volt, 60 cycle commercial a-c to provide dependable service year after year without attention.

Most models have ringing converters and tone generators operating from the a-c input. Some models, however, have transistorized ringing and tone supplies which operate from the output of the d-c supply. If a model incorporating transistorized ringing and tone supply is used as a charger, the ringing and tone will be energized by the battery in the event of an a-c power failure. Therefore the ringing and tone supplies will continue to function.

The d-c output of all models is well-regulated and filtered for use in telephone circuitry.

Most models are designed for equipment cabinet installations while some others may be relay rack mounted.

For more information, specific to individual models, refer to Tables I and II.

LORAIN Products Corporation
(Area Code 216) AT 8-9191 1122 F. St., LORAIN, OHIO, 44052

DESIGNERS AND MANUFACTURERS
SUB-CYCLE® CONVERTERS
FLOTROL® RECTIFIERS

MODEL	TYPE	TALKING OUTPUT D-C Volts	Amp.	Regulation †	RINGING OUTPUT Volts	Watts	Cycles	SIGNALING OUTPUT	TONE OUTPUT 600/120 cps
3B1	ELIMINATOR	50	3 Amps. Cont. 4 Amps. intermittent	± 2%	90	7.5	20	10 v., 60 cycle a-c, for 12 circuits, 2 amps.	25 MILLIWATT
3B2	* ELIMINATOR	50	3 Amps.	± 2%	*** 90/110	7.5	20	———	*** 100 MILLIWATT
5B1	ELIMINATOR	50	4.5 Amps.	± 2%	*** 90/110	7.5	20	10 v., 60 cycle a-c, for 2 circuits, 1 amp.	*** 100 MILLIWATT
6A1	ELIMINATOR	24	6 Amps.	± 5%	90	7.5	20	10 ± 1v., 60 cycle a-c, 15 amp.; 20 ± 2.5 v., .60 cycle, a-c, 1 amp.	———
6A2	ELIMINATOR	22.5	4 Amps. Cont. 8 Amps. intermittent	± 5%	90	7.5	20	10 ± 1v., 60 cycle a-c, 15 amp.; 20 ± 2.5 v., 60 cycle a-c., 1 amp.	———
6B2	* ELIMINATOR	50	6 Amps.	± 2½%	90	7.5	20	———	25 MILLIWATT
6B3	ELIMINATOR CHARGE	50	6 Amps.	± 2%	90	7.5	20	———	25 MILLIWATT
6B4	ELIMINATOR-CHARGER	50	6 Amps.	± 1%	*** 100	7.5	20	———	*** 25 MILLIWATT
6B5	* ELIMINATOR	50	6 Amps.	± 2%	90	7.5	20	———	25 MILLIWATT
6B6	** CHARGER	50	6 Amps.	± 1%	*** 100	7.5	20	———	*** 25 MILLIWATT
6B8	* ELIMINATOR	50	6 Amps.	± 1%	*** 100	7.5	20	———	*** 25 MILLIWATT
†† 6B10	* ELIMINATOR	50	6 Amps.	± 1%	———	———	———	———	———
9B2	ELIMINATOR	50	9 Amps.	± 1%	100	5	30	———	25 MILLIWATT
9B3	ELIMINATOR-CHARGER	50	9 Amps.	± 1%	*** 100	7.5	20	———	*** 25 MILLIWATT
9B4	ELIMINATOR	50	9 Amps.	± 1%	90	7.5	20	———	25 MILLIWATT
9B6	ELIMINATOR	50	9 Amps.	± 2%	90	15	20	22 v., 60 cycle ac, 0.25 amp.	100 MILLIWATT
9B7	CHARGER	50	9 Amps.	± 1%	*** 90/110	25	20	22 v., 60 cycle a-c, 0.25 amp.,	*** 400 MILLIWATT
12A1	ELIMINATOR	24	12 Amps.	± 5%	90	7.5	20	10 ± 1 v. 60 cycle a-c, 30 amps; 20 ± 2.5 v. 60 cycle a-c, 2 amps.	———
12B1	ELIMINATOR-CHARGER	50	12 Amps. Cont. 18 Amps. intermittent	± 1%	*** 100	7.5	20	———	*** 25 MILLIWATT
12B3	ELIMINATOR-CHARGER	50 130	12 Amps. 1 Amp.	± 5% unreg.	*** 100	7.5	20	10 volts, d-c, 2 amp. 10 V., 60 cycle, a-c, 1 amp.	*** 25 MILLIWATT
†† 12B4	ELIMINATOR-CHARGER	50	12 Amps. Cont. 18 Amps. intermittent	± 1%	———	———	———	———	———
¶ 20B1	ELIMINATOR-CHARGER	50	20 Amps.	± 1%	*** 90/110	15	20	———	*** 100 MILLIWATT
†† 20B2	ELIMINATOR-CHARGER	50	20 Amps.	± 1%	———	———	———	———	———
¶ 30B1	ELIMINATOR-CHARGER	50	30 Amps.	± 1%	*** 90/110	15	20	———	*** 100 MILLIWATT
†† 30B2	ELIMINATOR-CHARGER	50	30 Amps.	± 1%	———	———	———	———	———

* Adapter kit is available, as an accessory, for charger use.
** Adapter kit is available, as an accessory, for eliminator use.
*** DC operated Transistor Circuitry.

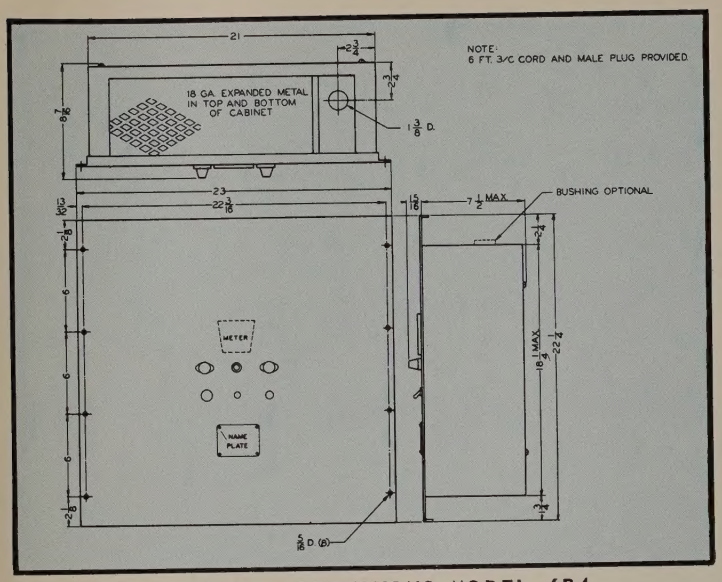
† Regulation from no load to full load, over the full input range.
†† For further information on these models, write to the factory.
††† 130 volt, unregulated output is protected by a 1 amp. fuse.

¶ These models utilize silicon controlled rectifiers in the power supply; the transistorized interrupter is available as an accessory. A charge failure alarm relay is also available as an accessory.

INTERRUPTION	METERS	SHIPPING WEIGHT Pounds	CIRCUIT PROTECTION AC Line Input	Ringing Converter Input	Tone Generator Input	DC Output	Signaling Output
PATTERN A	Voltmeter Ammeter	107	6 amp. fuse	2 amp. fuse	2 amp. fuse	4 amp. fuse	Twelve 1 1/3 amp. fuses
———	Voltmeter (Ammeter-Accessory)	71	6 amp. fuse	1 amp. fuse	1/4 amp. fuse	10 amp. fuse, disconnect relay.	———
PATTERN B	Voltmeter Ammeter	100	10 amp. fuse	1 1/2 amp. fuse	1 1/2 amp. fuse	10 amp. fuse	Two 1 1/3 amp. fuses
———	Voltmeter Ammeter	111	5 amp. fuse	1 1/2 amp. fuse	———	6 amp. fuse	1 amp. fuse for 20 V. 15 amp. ckt. bkr. for 10 V.
———	———	68	5 amp. fuse	1/2 amp. fuse	———	8 amp. fuse	1 amp. fuse for 20 V. 15 amp. ckt. bkr. for 10 V.
———	Voltmeter	149	10 amp. fuse in each lead.	1½ amp. fuse	10 amp. fuse in each lead.	10 amp. fuse, disconnect relay.	———
———	Voltmeter (Ammeter-Accessory)	103	10 amp. fuse in each lead.	1½ amp. fuse	2 amp. fuse in each lead.	10 amp. fuse, disconnect relay.	———
———	Voltmeter	118	10 amp. fuse	1 amp. fuse	1 amp. fuse	10 amp. fuse, disconnect relay.	———
———	Voltmeter	123	10 amp. fuse in each lead.	1½ amp. fuse	2 amp. fuse in each lead.	10 amp. fuse	———
———	Voltmeter Ammeter	140	10 amp. fuse in each lead.	1 amp. fuse	1 amp. fuse	10 amp. fuse, disconnect relay.	———
———	Voltmeter	103	10 amp. fuse	1 amp. fuse	½ amp. fuse	10 amp. fuse	———
———	Voltmeter		10 amp. fuse	———	———	10 amp. fuse	———
———	Voltmeter	131	20 amp. fuse in each lead.	½ amp. fuse	2 amp. fuse in each lead.	20 amp. fuse	———
———	Voltmeter	154	20 amp. fuse	1 amp. fuse	½ amp. fuse	20 amp. fuse, disconnect relay.	———
———	Voltmeter	157	20 amp. fuse in each lead.	1½ amp. fuse	2 amp. fuse in each lead.	20 amp. fuse	———
PATTERN B	Voltmeter Ammeter	174	15 amp. fuse	2 amp. fuse	2 amp. fuse	15 amp. fuse, disconnect relay.	0.6 amp. fuse
PATTERN B	Voltmeter Ammeter	174	15 amp. fuse	2 amp. fuse	2 amp. fuse	15 amp. fuse, disconnect relay.	0.6 amp. fuse
———	Voltmeter Ammeter	136	10 amp. fuse	1 1/2 amp. fuse	———	15 amp. fuse	2 amp. fuse for 20 V., 30 amp. ckt. bkr. for 10 V.
———	Voltmeter	145	15 amp. fuse	1 amp. fuse	1 amp. fuse	20 amp. fuse, disconnect relay.	———
*** PATTERN C	Voltmeter Ammeter	145	15 amp. fuse in each lead.	1 amp. fuse	½ amp. fuse	20 amp. fuse, disc. relay for 50 V. output.†††	2 amp. fuse
———	Voltmeter		15 amp. fuse	———	———	20 amp. fuse, disconnect relay	———
*** PATTERN D	Voltmeter Ammeter	183	25 amp. circuit breaker	1 1/3 amp. fuse	1/4 amp. fuse	25 amp. fuse	———
———	Voltmeter Ammeter		25 amp. circuit breaker	———	———	25 amp. fuse	———
*** PATTERN D	Voltmeter Ammeter	296	40 amp. circuit breaker	1 1/2 amp. fuse	1/4 amp. fuse	40 amp. circuit breaker	———
———	Voltmeter Ammeter		40 amp. circuit breaker	———	———	40 amp. circuit breaker	———

Interruption Patterns shown are standard; other patterns are available upon consultation with the factory.

PATTERN A - IPM: 30, 60, 120. Ringing: 2 sec.-on, 4 sec.-off; 1 sec.-on, 3 sec.-off.
PATTERN B - IPM: 15, 30, 120 @ 0.25 sec.; 60 @ 0.50 sec. Ringing: 1 sec.-on, 3 sec.-off.
PATTERN C - IPM: 30, 120 @ 0.25 sec.; 60 @ 0.50 sec.; 120 wink. Ringing (2) & 15 IPM @ 1 sec.-on, 3 sec.-off.
PATTERN D - IPM: 15, 30, 120 @ 0.25 sec. Ringing: 1 sec.-on, 3 sec.-off.

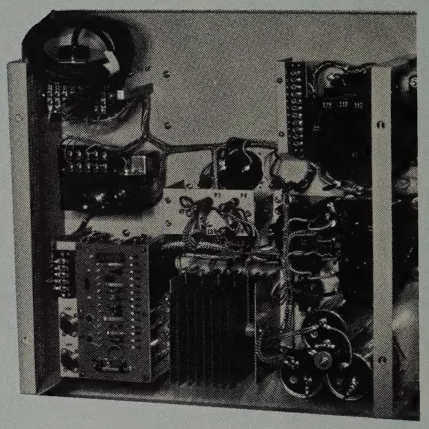

NOTE:
6 FT. 3/C CORD AND MALE PLUG PROVIDED
18 GA. EXPANDED METAL IN TOP AND BOTTOM OF CABINET
BUSHING OPTIONAL
METER
NAME PLATE

OVERALL DIMENSIONS MODEL 6B4

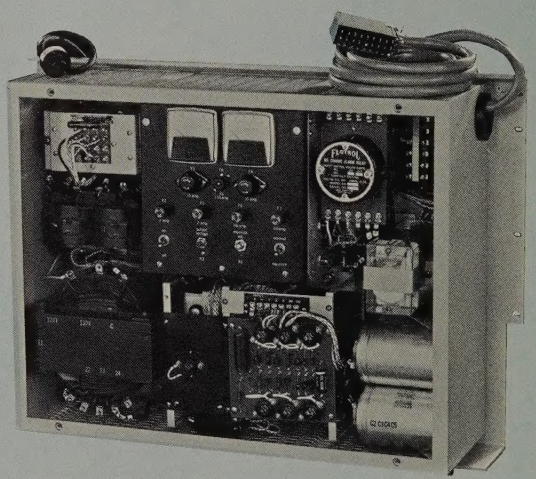
MODEL	DIMENSIONS HEIGHT	WIDTH	DEPTH
3B1	14	20 1/4	10
3B2	10	19	12
5B1	11 7/8	31 1/2	8
6A1	24 3/8	19	8 1/2
6A2	9 1/2	22 3/4	8 3/4
6B2	9 31/32	46 1/2	12 13/16
6B3	22 1/4	23	9 5/8
6B4	22 1/4	23	8 7/16
6B5	22 1/4	23	8 3/32
6B6	27 3/8	19	8
6B8	22 1/4	23	7 15/16
† 6B10	22 1/4	23	
9B2	9 31/32	46 1/2	13 1/4
9B3	9 31/32	46 1/2	9 1/8
9B4	9 31/32	46 1/2	13 1/4
9B6	19	26 1/2	7 5/8
9B7	19	26 1/2	8
12A1	24 3/8	19	8 1/2
12B1	22 1/4	23	8 7/16
12B3	12 7/32	23	15
† 12B4	22 1/4	23	
20B1	22 1/4	23	11 1/16
† 20B2	22 1/4	23	
30B1	22 1/4	23	12
† 30B2	22 1/4	23	

TABLE II

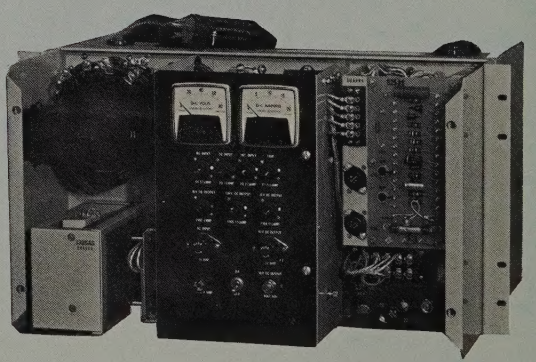
† FOR MORE INFORMATION ON THESE MODELS WRITE TO THE FACTORY



MODEL 6B8 - REAR VIEW - RACK MOUNTED



MODEL 9B7 - FRONT VIEW - COVER-OFF



MODEL 12B3 - FRONT VIEW - COVER-OFF

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